

Fetal Outcomes Associated with Placental Findings of Delayed Villous Maturation Based on Amsterdam Consensus Criteria: A Systematic Review and Meta-Analysis

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Introduction :

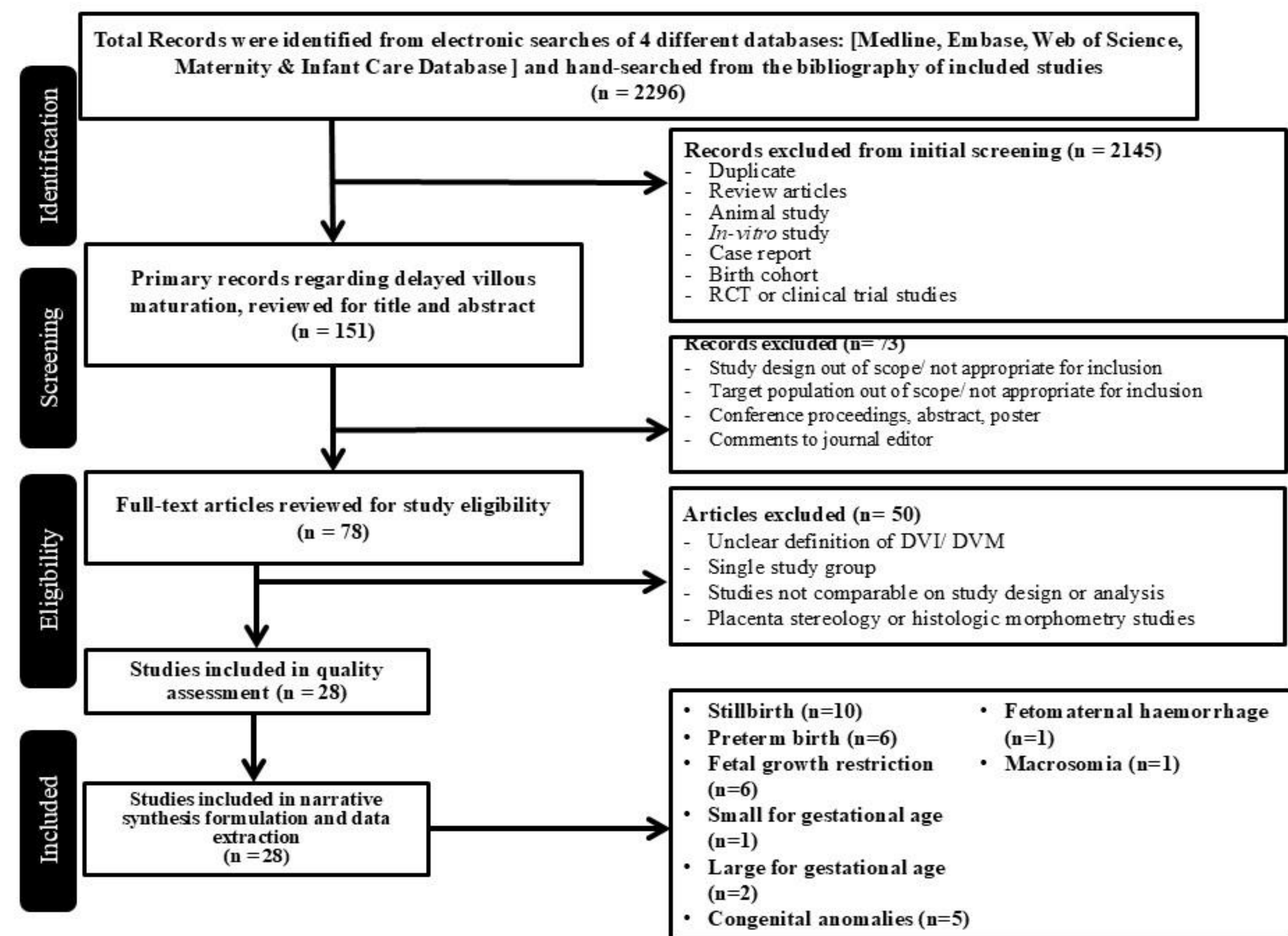
Delayed Villous Maturation (DVM) = villi with centrally placed capillaries and decreased vasculosyncytial membrane (Amsterdam Placental Workshop Group Statement).

Aim: summarise literature on outcomes associated with DVM by Amsterdam criteria

Design: Systematic Review and Meta-Analysis.

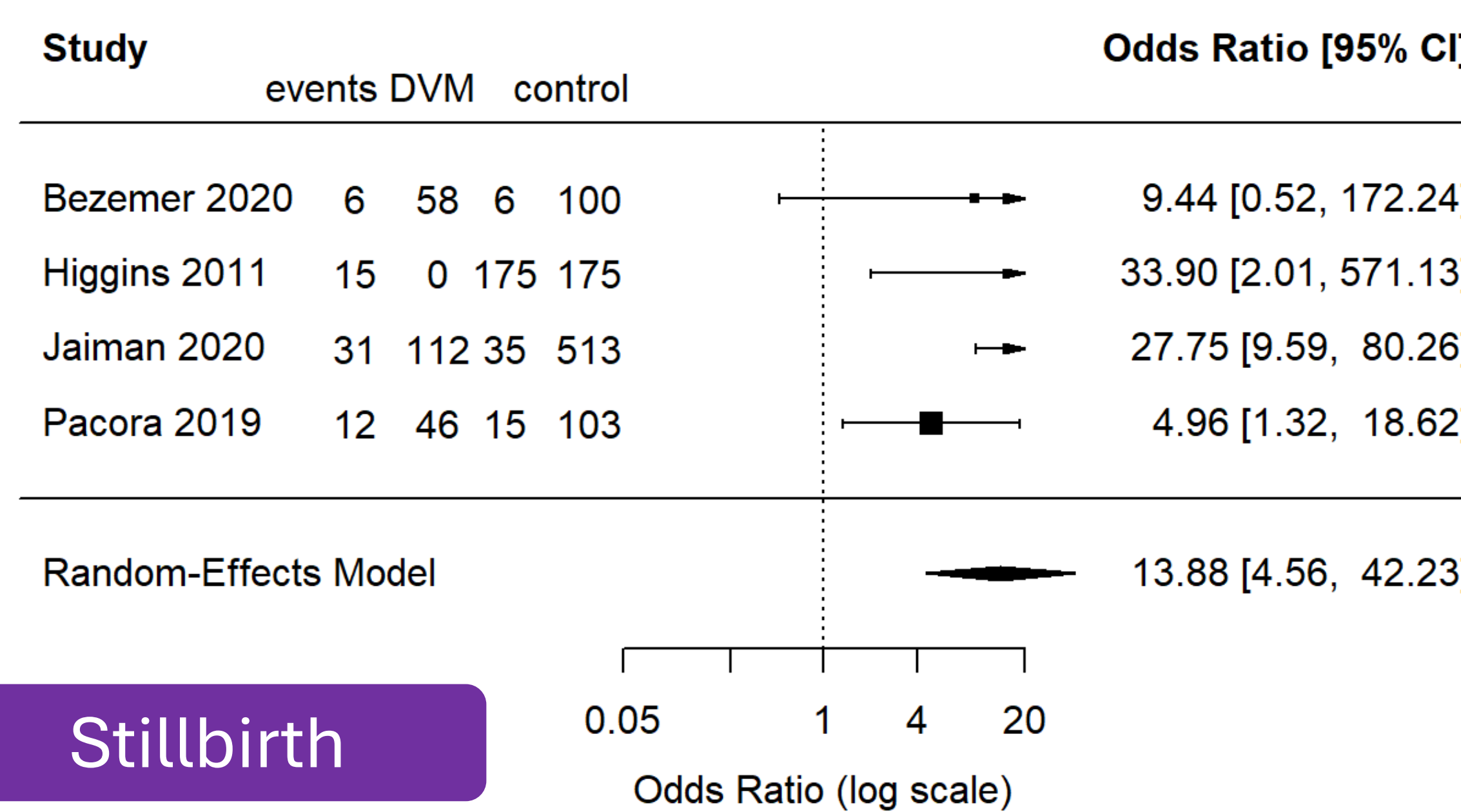
Methods:

- ☐ **Literature Searches:** Embase, Medline, Web of Science, MIDIRS from inception to 31 January 2024 (PROSPERO: CRD42024490995).
- ☐ Study Exposure: Placenta with DVM
- ☐ Inclusion criteria: full-text published articles, appropriate histopathologist definition of DVM/DVI and reporting fetal outcomes (stillbirth, preterm birth, fetal growth abnormalities, fetal anomalies, etc).
- ☐ Exclusion criteria: case report, case series, single group study, animal studies, cell studies, review article

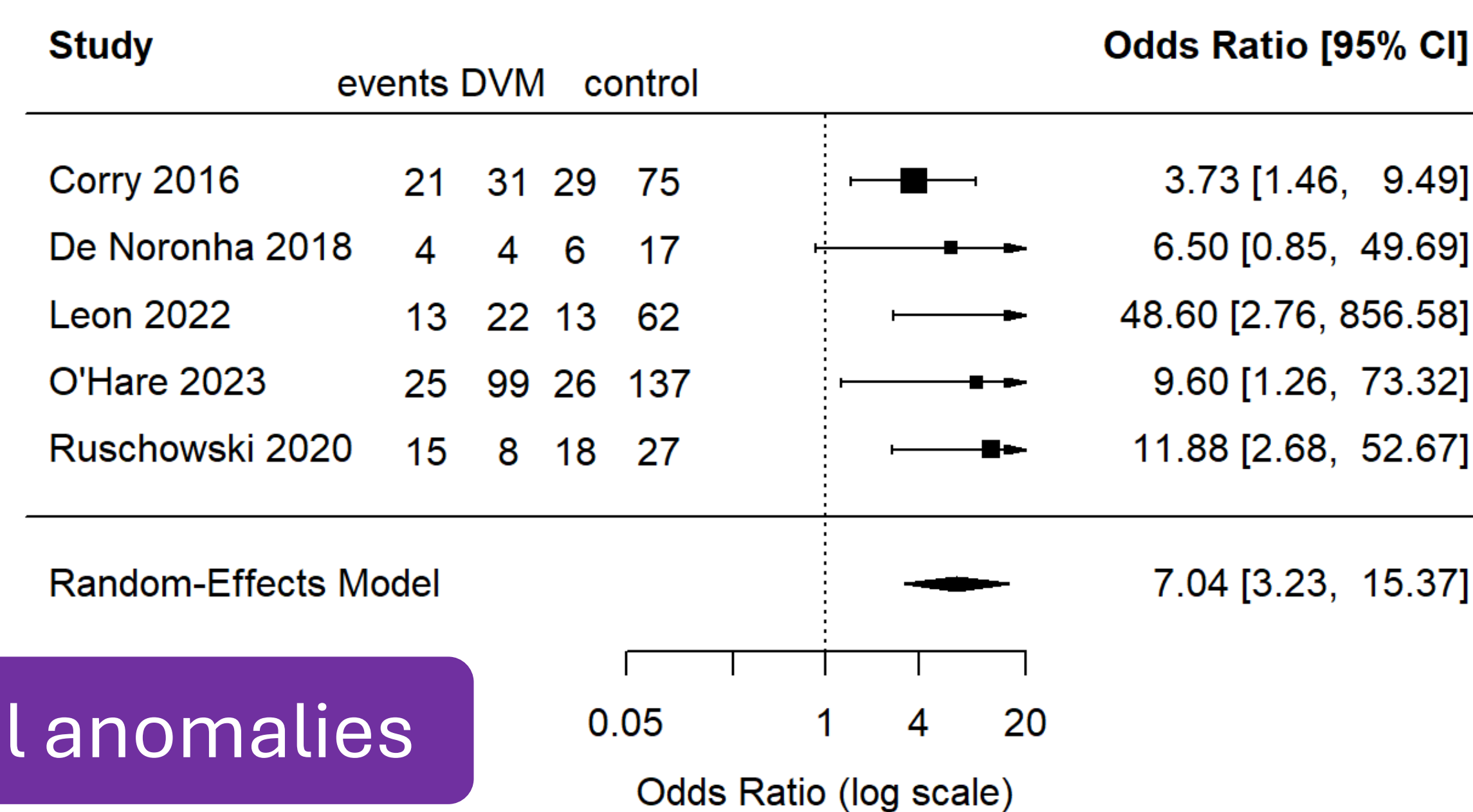


Meta-Analysis of Pooled Data

Outcomes	Pooled OR (95% CI)
Stillbirth	12.06 (3.40, 42.78)*
Fetal growth restriction	1.84 (0.50, 6.76)
Preterm birth	4.06 (0.18, 93.41)
Congenital anomalies	6.66 (3.26, 13.61)*

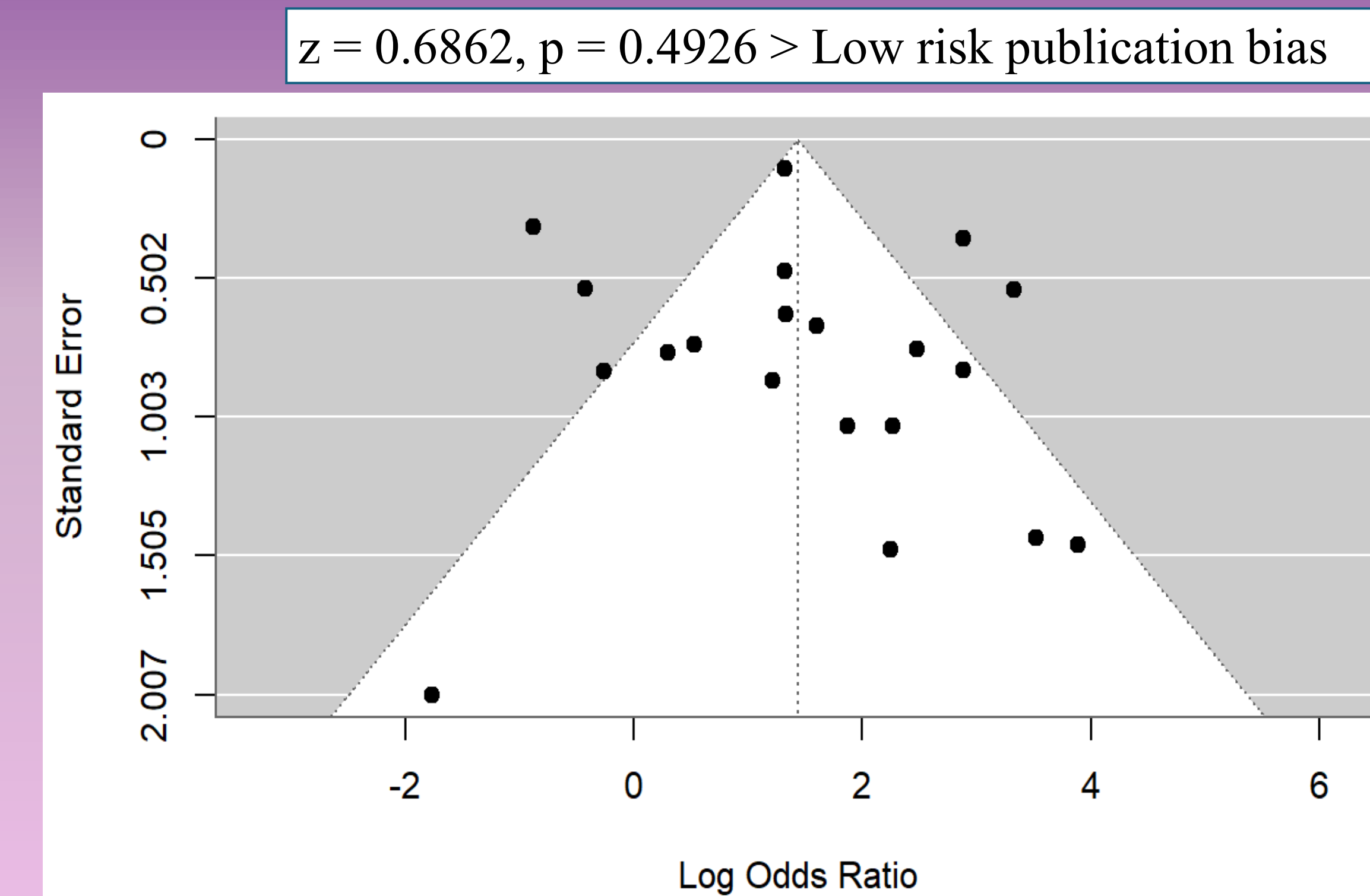


Stillbirth



Congenital anomalies

Risk of Bias



Issues:

- Diagnosis of DVM in preterm placentas is controversial
- Histopathological diagnosis of DVM is inconsistent: poor interobserver agreement

Conclusion:

- DVM associated with stillbirth and congenital anomalies.
- More investigations related to predisposing maternal risk factors are urgently needed to prevent DVM and the associated adverse outcomes.

References:

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3. O'Hare CB, Mangin-Heimos KS, Gu H, et al. Placental delayed villous maturation is associated with fetal congenital heart disease. Am J Obstet Gynecol. 2023 Feb 1;228(2):231.e1-231.e11.
4. Ruschkowski B, Lafreniere A, Demellawy D El, Grynspan D. Gastroschisis Is Associated With Placental Delayed Villous Maturation. Pediatric and Developmental Pathology. 2020 Jun 1;23(3):197–203.